REMARKS

Claims 1-2, 5, 7-8, 17, 19, 28-29 and 51-57 have been rejected under 35 U.S.C. § 102(a) as being anticipated by Sammes (WO 99/17390). Claims 3 and 4 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Sammes, as applied to Claims 1-2, 5, 7-8, 17, 19, 28-29 and 51-57, and in further view of Dodge (WO 96/04690). Claims 6, 9-10, 18 and 20-27 have been similarly rejected as being unpatentable over Sammes in further view of Isenberg (EP 0055016 A1), Claims 9-16 have been similarly rejected over Sammes in further view of Will (U.S. 4,347,429) and Claims 30-32 have been similarly rejected over Sammes in further view of Goodenough (U.S. 6,004,688). Reconsideration of these claims is respectfully requested.

Sammes discloses an integrated solid oxide fuel cell and reformer. The cells 2, as designated in FIGS. 1, 2 and 3 consist of three layers. The outer layer, the cathode, is in contact with an oxygen containing gas, such as air. Oxygen reacts in this layer to an oxygen ion by picking up electrons. The oxygen ion migrates through the middle layer, being the electrolyte. This transfer takes place at a temperature of 600-1000 degree C., depending on the electrolyte material, and consequently this determines the operating temperature. When it arrives at the inner layer, the anode, it reacts with the fuel (e.g. hydrogen) to form water. The hydrogen gives up an electron which passes through the electrical circuit to the cathode. Page 11, lines 4-13. The electrolyte tube is made by making a paste of the electrolyte material with binders and plasticisers. The paste is extruded into tube, and then sintered. Anode and cathode material containing slurries are made and are put on the inside, and outside of the electrolyte, respectively. The anode slurry is applied by suction, the cathode is pasted or sprayed on. Then the electrodes are sintered. Page 11, lines 19-23. An alternative way of producing cells is by first extruding and sintering a tube of anode material. Onto this tube a thin layer of electrolyte is applied, the contact area of which, with the anode, can be increased by applying suction to the anode tube. This is sintered and subsequently the cathode is applied and sintered. Page 12, lines 1-4. The electrons enter the cathode by passing the connector 14 and an electrically conducting layer, which is on the cathode. The connector 14 is placed around the inlet end of the tubular cell, it is made of, for instance, nickel sheet. The electrically conducting layer (not shown) is, for instance, a silver wire or silver paste. The connector 14 is made of sheet metal with a thickness of 0.2-0.3 mm, cut into a rectangle of about 8 by 8 mm, with a lip of 3 by 8 mm, approximately.

It is folded around a rod, with the same diameter as the tubular cell, and mounted on the ceramic tube. A small hole in the lip provides the connection with the anode wire of an adjacent cell. The end of the lip is preferred to be at a level with the end of the cell, thus short circuiting is prevented. The electrons produced at the anode are passed to a current collector, for instance made of nickel, consisting of a number of wires twisted around each other. By twisting wires, electrical contact is ensured, but also space for gas to pass remains. Page 12, lines 9- 22.

Amended Claim 1 is patentable by calling for a tubular solid oxide fuel cell assembly for use with fuel gas comprising an anode side defining a tubular passage adapted for passage of the fuel gas, the anode side including a ceramic-type anode layer and an anode-side current collector in electrical contact with the anode layer, a solid oxide electrolyte layer on a radially outer surface of the anode layer, a cathode layer on a radially outer surface of the electrolyte layer, and a cathode-side current collector on the cathode layer, the anode-side current collector including a preformed tubular metallic structure that is gas permeable to permit fuel gas in the passage to contact the anode layer and has a surface that is formed of one of Ni and Ni alloy, the anode layer being formed of a green material sintered on the tubular metallic structure so that the tubular metallic structure is at least partly embedded in the anode layer and reinforces the anode layer.

The rejection of Claim 1 as being anticipated by Sammes is in error because the Office is improperly applying hindsight reconstruction to identify the claimed elements in Sammes. Courts have repeatedly warned that the patentability of an invention is not to be viewed with hindsight or "viewed after the event." See Goodyear Co. v. Ray-O-Vac Co., 321 U.S. 275, 279, 64 S.Ct. 593, 88 L.Ed. 721 (1944) and authorities cited therein. The Office is further reminded of the warning recently provided by the Supreme Court and as further cited by the Board of Patent Appeals. "[A] factfinder should be aware, of course, of the distortion caused by hindsight bias and must be cautious of argument reliant upon ex post reasoning." KSR Int'l Co. v. Teleflex Inc., 127 S. Ct. 1727 at 1742.

Contrary to the assertion of the Examiner, Sammes does not disclose an anode side including a ceramic-type anode layer and an anode-side current collector in electrical contact with the anode layer, the anode-side current collector including a preformed tubular metallic structure and the anode layer being formed *on* (emphasis added) the tubular metallic structure as

called for in Claim 1. In contrast, and in the context of describing a connector 14 and as discussed above, Sammes merely discloses the electrons produced at the anode of the Sammes fuel cell are passed to a current collector, for instance made of nickel, consisting of a number of wires twisted around each other and further states that by twisting wires, electrical contact is ensured, but also space for gas to pass remains. Although not clear to Applicants, the Examiner's arguments set forth in the Advisory Action appear conditioned on the "twisting wires" of Sammes forming a tubular structure which extends within the anode of Sammes and contacts the inside of such anode. However, there is no support in Sammes for these conclusions of the Examiner. Instead, equally plausible interpretations of Sammes are that the "twisting wires" disclosed therein extend transversely of the gas stream of the Sammes fuel cell and/or extend through the connector 14 of Sammes, discussed in detail in the "Current Pick-up" section of Sammes cited by the Examiner, and hence in either case have "space for gas to pass." Should the Examiner continue to assert that Sammes discloses "the anode layer being formed on the tubular metallic structure" as called for in Claim 1, Applicants request that specific language in the specification and drawings of Sammes supporting such an interpretation be cited by the Examiner.

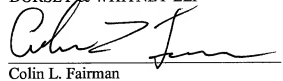
In addition to the foregoing, Sammes does not disclose a tubular solid oxide fuel cell assembly of the type set forth in Claim 1 in which the anode layer is formed of a green material *sintered on* (emphasis added) the tubular metallic structure so that the tubular metallic structure is at least partly embedded in the anode layer and reinforces the anode layer. Should the Examiner believe to the contrary, Applicants again request that specific language in the specification and drawings of Sammes supporting such any such contrary interpretation of the Examiner be cited by the Examiner.

Claims 2-32 and 51-57 depend from Claim 1 and are patentable for the same reasons as Claim 1 and by reason of the additional limitations called for therein. For example, Claim 17 is additionally patentable by providing that the anode layer is an extruded layer formed on the tubular metallic structure of the anode-side current collector. As discussed above, there is no disclosure in Sammes that the anode thereof is formed on the current collector thereof, let alone that the anode of Sammes is an extruded layer formed on the current collector thereof. Instead, as discussed above, Sammes merely discloses how its anode and cathode layers are formed on the electrolyte tube thereof.

In view of the foregoing, it is respectfully submitted that the claims of record are allowable and that the application should be passed to issue. Should the Examiner believe that the application is not in a condition for allowance and that a telephone interview would help further prosecution of this case, the Examiner is requested to contact the undersigned attorney at the phone number below.

Respectfully submitted,

DORSEY & WHITNEY LLP



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